Treasure Cave - from Gamejam to Play Store

Blog - Programming - 02

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Abstract

In toady's blog, I want to talk about my second in development project: Treasure Cave As always, I will give a quick introduction into the project, then I will go a bit into the details about the gamejam, where my friends and I created this game, and then I'll move over to today's state of development.

Figure 0.1 Treasure Cave Gamejam Logo

1 Introduction

1.1 What is Treasure Cave?

Treasure Cave is a mobile mining game, currently only for Android (simply because we lack apple devices), which uses mixed reality to create an unique playing experience. The usage of hardware features, like the gyroscope or accelomereter provide an intuitive interaction method with the game. The game features two different game modes. The first being a "Hunt the Highscore" mode, in which you play against the highscore list of all other global players for a total of one minute. The second mode is level based and offers different unlockable and upgradeable environments to the player . In both modes, the goal is, to scan the surrounding rocks for treasures and mine as much valuables ores and gems as possible, while the trying to avoid the dangers of the mine, like leaking water, left over dynamite and more ! However, the player cannot move around, only rotate around the camera, through rotating his/her phone.

2 The Gamejam

2.1 Gamejam setup

The base game was created during the TUM Semestergamejam 2018 Winter edition, where the topic was "Discovery". This build only included the highscore mode, and dynamite as only danger. After some brainstorming, we went with a simple, yet interesting mining game, because it looked like a very good idea, that could be developed further after the gamejam. During the gamejam we split the team in two subgroups, an art and a programming group. This was necessary, as last time everything went crazy, because we did not assign clear roles for everyone.

So David and me were in the artist group, and the Joshua, Maarten and Phillip were responsible for the functionality and gameplay. During the development, I became the visual programmer of the project as well.

2.2 Graphics

Right at the beginning, the graphical style of the game had to be set, otherwise the game will not have any consistent visuals at the end of the jam. We decided to go for a low poly style, after looking at some visual examples of caves and cliffs. It also allowed a fast modelling process, as the rocks and items used for the game are very simple, and could be reused a lot. Later on this decision proofed itself to be the only viable way to go. The only model which provided some starting problems was the cave model, which is the model that cannot be interacted with. We had a very clear idea, how it should look like, and tried to come up with a good idea, to create it. After some experimenting, we went for a procedure in blender, which looked like the following:

Create a plane -> subdivide it multiple times -> triangulate the subdivided plane -> subdivide one last time, and add noise in the subdivision effect -> bend the mesh according to a circular spline -> cut off as much overlapping plane as possible -> add 2 planes, which were subdivided in the same way, to the end of the tube, to close it

A problem which arises with this procedure is, that due to the bending, a lot of vertices overlap and the outer most, can be removed, because they are not visible from within the cave. But some of these vertices also intersect with the innermost faces, therefore it is a Sisyphus task to optimize the mesh. So we did not do that completely, but only cut off the easy to select vertices. During the gameplay tests, no real performance issues occurred with this solution.

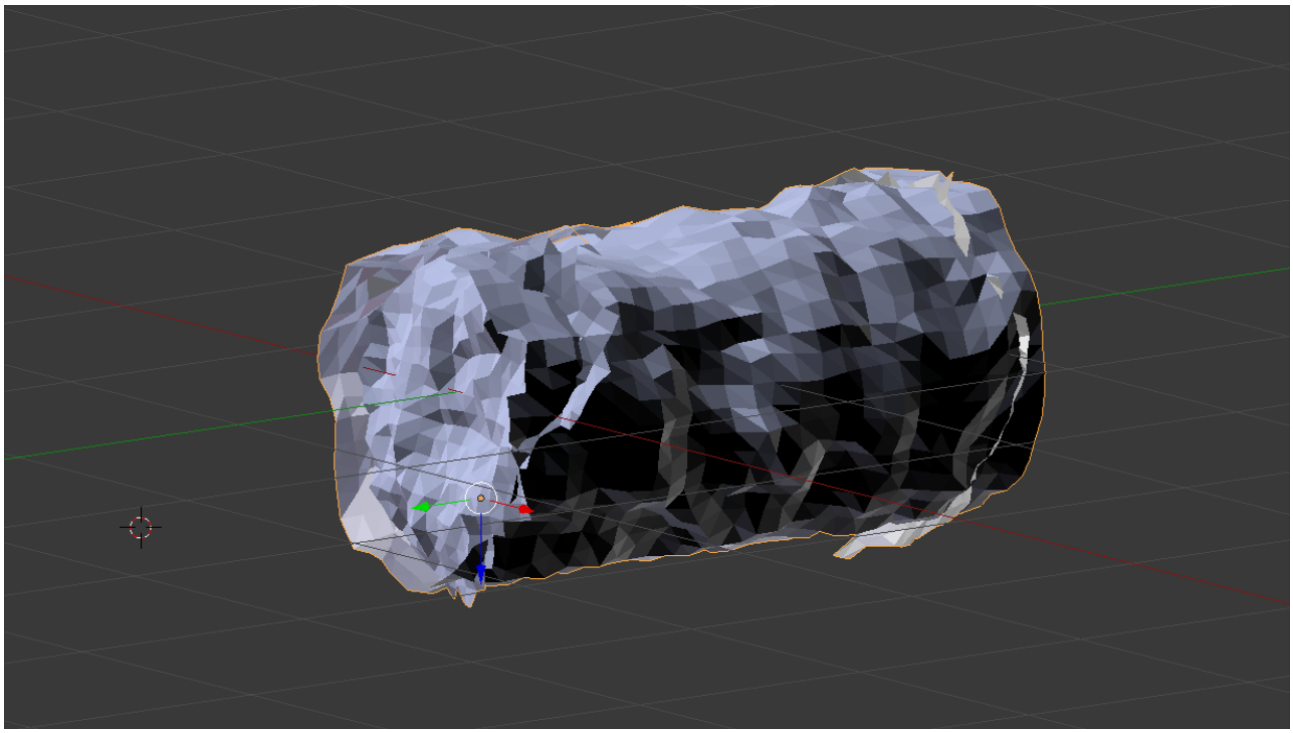

Figure 2.1 Cave tube after end of the procedure (in blender)

2.3 Game features

The core mechanic of the game is the ability to rotate the camera through the rotation of the device. So this movement has to be accurate and very smooth, in order to provide a good user experience. During the gamejam and even after that, different edge cases caused different problems with the implementations we used. For example: When we tried to smooth the movement of the camera, in order to counter the jittering of the users hand, it could happen that after after some very fast rotations, the camera was off from the correct rotation angle. This caused the game to be unplayable, because most of time, the camera faced straight down, which made it very hard to align the camera with the horizontal axis, let alone look up.

But after many iterations Maarten got a working solution for the jam, and later on a better one for the current development build.A problem which surprised us a lot, was the fact that apparently a relatively high amount of devices does not have a gyroscope. We came across this problem, when the same version did not work on some older (maybe 2-3 years old) devices, but on newer devices.

2.4 Focus on simplicity

Before I already mentioned that the low poly graphic style was the only possible way for our game. I'd like to elaborate this a bit more. Because our game had not much difficult functionality (programming wise), the other three got things working quite fast. So with ongoing time, their progress was much faster than ours, and in the case that we would have chosen another art style, this game would not have been finished in the 32 hours of the gamejam. This is not an uncommon occurrence at the gamejams I participated. The reason I see for this is, that gamejam games are usually super simple, functionality wise. But in order to stick out, it has to have a consistent, and good graphics style. So all games of the gamejams we were in, had a very high amount of art assets, compared to the amount of features. And this often leads to the point, that the game functionality itself is ready long before deadline, but the art assets are not, simply because we need a lot of them.

At the end of the gamejam we actually won the category price "Engineering", because our game was one of the most polished games at the event, and everything worked. We even had a bitcoin level. Why? Because we had the time.

3 Into the Google Play Store

Now that you've gotten a good insight on how we created the base of our game, it is now time to go over the current development and our plans until the play store release. Short notice tho: we added a water mechanic and the said level based gamemode into the game in order to hand it in for a lecture. The water acts as new danger, compared to only one danger in the gamejam build. Unlike the dynamite, the water has a counter action, which consists of rotating the phone 90 degree around the forward vector of the phone.

The game itself offers a lot of potential, which would require a bigger team to fully embrace. There could be dozens of different levels, dangers and challenges, as well as special movement for selected levels and more. But because we are only 5 people, we do not go for that. For further development, we deciced to redo the UI of the game, as it is way too static, and does not look that nice in flat 2D. Therefore a 3D menu is currently in the creation process by me. Gameplay wise, we want to go for a progression system in the level gamemode. The progression system allows the player to unlock new mining places, and also upgrade every mining place, to get more mining positions within one mine. Currently we are aiming for 3 different places. Of course the game will have a tutorial as well, which will introduces new players into the game. Because some people mentioned, that it might look a bit strange to play the game in public, we think about implementing alternative swipe controls to move the camera.

But most work remaining is creating all assets, animations, UI elements until we reach the Google Play Store. But when we are ready, we want to launch the game into the Google Play store, and if we find a way, to deploy it on the Apple Appstore as well, we would like to do that as well, afetr proper testing of course.

4 Final words

So now that you've gotten an insight into our game, you might want to play a round. Luckily, the gamejam version is still available for download. you can find it here: itch.io

Here is my team: Maarten Bussler - Core Programmer
Contact Maarten here: maarten.bussler@gmail.com
David Drothler - Artist
Phillip Eckart-Weißbäcker - Core Programmer
Joshua Weggartner - Core Programmer
Follow Joshua on Twitter: @devploration

I'd also like to address the upcoming blog posts. Now that I've covered every major topic, the blog posts will become much shorter, as there is not that much super exciting happening in my 2 projects. So I will post update posts on both projects. At the moment of writing, I'm not completely sure, whether I will post updates for both in one post per week, or post once a week, only one update and then switch the next week. But I will decide on that until the next time !

And yes, thanks for reading have a good day and See you next time
Luca =)